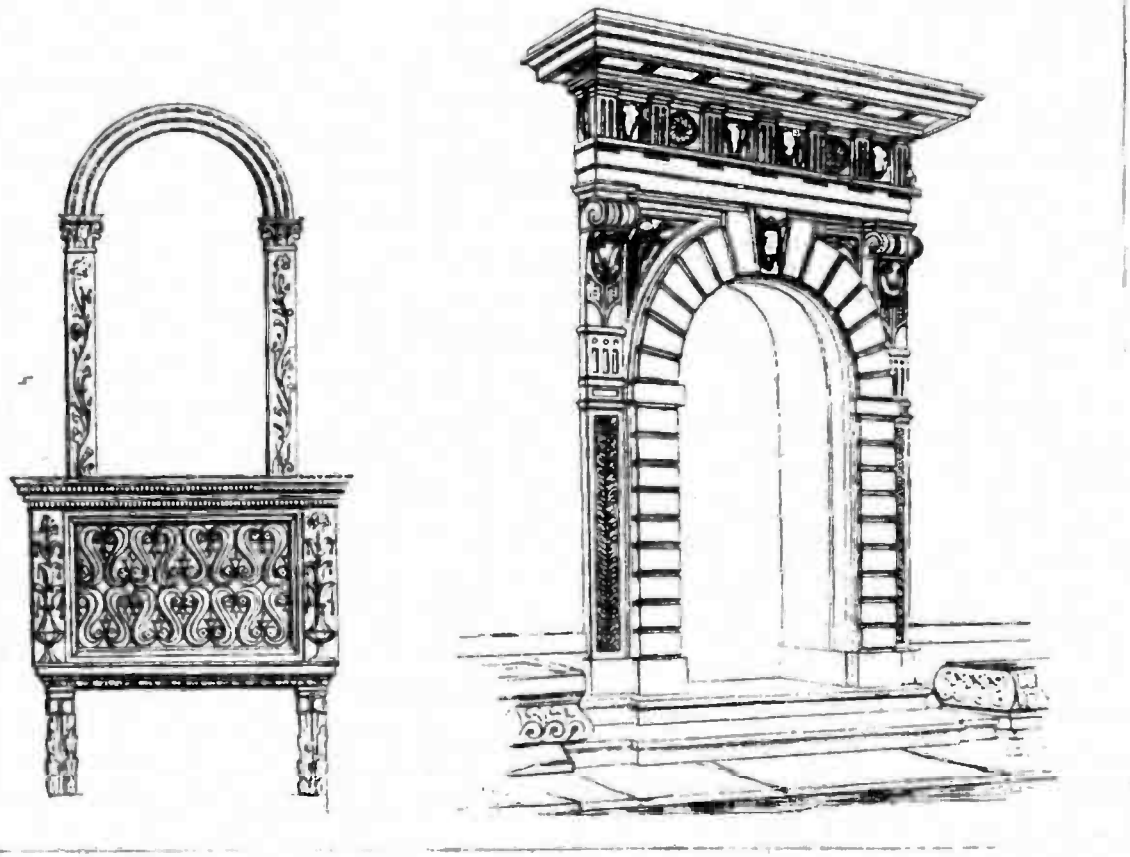
DETAILS FROM ITALY.



DETAILS FROM ITALY.

The first of the annexed engravings represents the window and balcony of a private house at Verona. The whole is carved in marble.

To this we add a doorway in Florence, which may afford a useful hint.

WATER SUPPLY FOR LONDON.

CLOSING MEETING OF THE INSTITUTE OF ARCHITECTS.

An extra meeting was held on Monday evening, the 8th instant; Mr. Fowler, Vice-president, in the chair. The premium offered for the best design in the students' class was presented to Mr. Bright Smith.

Mr. Godwin brought under the notice of the Institute the approaching architectural exhibition, gave praise to the body of young members of the profession who had spiritedly and at much personal cost undertaken the exhibition, and solicited for them the co-operation of the elder members of the profession. The receipt of a kind and encouraging letter from Professor Cockerell, he said, had removed any fear that it might be looked at with other than friendly feelings by the Royal Academy.

Mr. Prestwich then read a paper "On the Geological Conditions which determine the relative value of the Water-bearing Strata of the Tertiary and Cretaceous Series, and on the probability of finding in the lower members of the latter, beneath London, fresh and large sources of Water supply."

Mr. Prestwich commenced by stating that his observations were the result of inquiries connected solely with questions of pure geology, and were made without any anticipation of their application to this subject. He was led to it in the course of last winter by the apparent want of more exact geological information on the tertiary strata around London, which there seemed not unfrequently to be, in the many discussions which then took place on the important question of the supply of water to the metropolis. The existing system of Artesian wells in the sands below London clay, and in the chalk, as sources of public supply, had been generally considered as insufficient, and there is little doubt that the yield of water, although altogether considerable, is inadequate to the requirements of a large town. But the physical conditions under which that supply is obtained have not been investigated, and in the event of a comparison being instituted between the relative value and capabilities of the strata and those of any other water-bearing deposit, such an investigation becomes essentially necessary. The object of this paper was therefore to determine these conditions, and to inquire into the probability of meeting, in the beds below the chalk, which crop out in Kent, Surrey, Beds, Bucks, and Berks, Oxon. and Wilts, and pass at certain depths beneath London, with better sources of supply. These conditions are almost entirely geological, and are regulated by

1st. The lithological character and thickness of the water-bearing strata.

2nd. The areas over which the outcropping edges and exposed surfaces of these strata respectively extend.

3rd. The position which the outcrop occupies on the surface of the country.

4th. The surface being bare or covered by any form of drift.

5th. The existence of any lines of disturbance by which the subterranean circulation of the water may be interfered with or stopped.

All these points were considered at length. It was shown that the "lower tertiary strata" below the London clay present a very variable series of beds, being in some places 120 feet thick, and in others not more than 25 feet. Eastward of London they are thick and arenaceous, whilst, as they range westward, they become rapidly very argillaceous and thinner; so much so, as to be almost impermeable; that the area which they occupy is less than it is usually represented; that the position of their outcrop is not generally favourable, and their surface frequently covered by drift; and that they are traversed by two important lines of disturbance, one running nearly due east and west from the Nore by Deptford, and thence towards Windsor, and the other nearly north and south, and intersecting the first one at Deptford. Owing to these disturbances, the underground flow of water from Kent and Essex to these strata beneath London is almost entirely impeded, and that from Surrey in some measure affected. From these and other considerations, the author concluded, that although the superficial area occupied by the "lower tertiaries" extended over nearly 400 square miles (in Kent alone nearly 200), still that of this only about 30 square miles could be regarded as effective in contributing to the water supply of these strata beneath London.

A brief statement was then made of some of the Artesian wells in the adjacent districts. They are common in the valley of the Lea, from Waltham Abbey to Tottenham, but are not very productive, yielding generally not more than 4 to 5 gallons per minute. Almost all of them flow 2 to 3 feet over the surface. There are also several overflowing Artesian wells at Merton, Tooting, and Garrett. These are much more productive, supplying 50 to 100 gallons per minute. Many of these have been in operation from ten to twenty-five years.

At London, the supply of water in the tertiary sands having been constantly found insufficient, a considerable number of the wells have been continued down into the underlying chalk. The author then entered upon the question of the supply from this source, which he considered valuable, although rather uncertain. He accounted for the highly absorbent power of chalk by capillary attraction, which, at the same time, interferes with the ready and free passage of water in that formation. The water is, in fact, transmitted by percolation through fissures, which are of irregular occurrence and more numerous near the surface than at greater depths and in the planes of bedding, and not by general permeation through the mass, as is the case with arenaceous deposits. The lower beds of the chalk, or the chalk marl, are very argillaceous, preventing the passage of the water into the underlying upper greensand. This formation is from 20 to 50 feet thick in the meridian of London, and is shown by Mr. Prestwich to expand gradually until it attains at its most distant point of outcrop, at Devizes, a thickness of at least 140 feet, thus forming a wedge-shaped mass, of which the thinner end is beneath London, and the thicker one comes

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